

DRAFT BOARD OPTION 2 (REVISED 4/16/07)

STATIONARY SOURCE PERMIT TO OPERATE

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Mirant Corporation
8711 Westphalia Road
Upper Marlboro, MD 20774
Registration No.: 70228

is authorized to operate

located at an electricity generating facility

1400 North Royal Street
Alexandria, VA 22314

in accordance with the Conditions of this permit.

Approved on **DRAFT**.

Director, Department of Environmental Quality

Permit consists of 10 pages.
Permit Conditions 1 to 26.

INTRODUCTION

This permit approval is based on the permit application dated [April 9, 2007](#). Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action. In addition, this facility may be subject to additional applicable requirements not listed in this permit.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-10-20 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

PROCESS REQUIREMENTS

1. **Equipment List** - Equipment at this facility consists of the following:

Equipment to be modified			
Reference No.	Equipment Description	Maximum Rated Capacity	Manufactured Date
C1	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	970.1 mmbtu/hr	1949
C2	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners.	970.1 mmbtu/hr	1950
C3	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners and over fired air.	960.7 mmbtu/hr	1954
C4	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners and over fired air.	960.7 mmbtu/hr	1956
C5	Combustion Engineering, natural circulation, tangentially coal-fired with superheater and economizer with low NOx burners and over fired air.	960.7 mmbtu/hr	1957
Trona Handling	Pneumatic upload system, full enclosure	n/a	n/a

Specifications included in the permit under this Condition are for informational purposes only and do not form enforceable terms or conditions of the permit.

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

2. **SO₂ Emission Controls** – SO₂ emissions from boilers C1, C2, C3, C4, and C5 shall be controlled by the use of low sulfur coal and trona injection. The permittee shall maintain and operate a trona injection system on all five units at the facility. The permittee shall inject trona into the exhaust stream of each unit while the unit is operating.
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
3. **Monitoring** – A Continuous Opacity Monitoring System (COMS) shall be installed to measure and record the opacity of emissions from the stacks of boilers C1, C2, C3, C4, and C5. The monitors shall be maintained and calibrated in accordance with 9 VAC 5-40-41 of State Regulations.
(9 VAC 5-80-850, 9 VAC 5-40-40, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
4. **Monitoring** – A Continuous Emission Monitoring System (CEMS) and a flow monitoring system with an automated data acquisition and handling system shall be installed to measure and record the emissions of SO₂ from boilers C1, C2, C3, C4, and C5. The automated data acquisition and handling system shall measure and record SO₂ concentration (in ppm), volumetric gas flow (in scfh), and SO₂ mass emissions (in lbs/hr) discharged to the atmosphere. The CEMS shall be installed, certified, operated, and maintained according to approved procedures in accordance with the provisions of 40 CFR Part 75. The permittee shall utilize measured and recorded CEMS data to calculate hourly SO₂ emissions in pounds per million Btu and pounds per hour, and annual SO₂ emissions in tons per year. Hourly SO₂ emissions shall be calculated hourly as the average of each consecutive 3-hour period. Annual SO₂ emissions shall be calculated monthly as the sum of each consecutive 12-month period. Calculations shall be maintained on-site for the most recent 5-year period and shall demonstrate compliance with the emission limitations set forth in Conditions 13 through 16.
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
5. **Ambient Air Monitoring** – The permittee shall continue operate the six (6) existing SO₂ monitors to measure and record the concentration of SO₂ from the stacks of boilers C1, C2, C3, C4, and C5. The monitors shall be operated, maintained, and subject to the appropriate QA/QC provisions as set forth in Appendix A of 40 CFR Part 58.
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
6. **Ambient Air Monitoring** – The permittee shall maintain and operate an SO₂ monitor alert system in the facility's control room that shall register an audible alarm if in any one hour the average measured ambient concentration of SO₂ at any of the six (6) monitors is equal to or greater than 70% of the 3-hour SO₂ National Ambient Air Quality Standards (NAAQS), measured as 350 parts per billion (910 µg/m³). The permittee shall document and record each incident in which an alarm has been triggered. Records of each instance shall be maintained on-site for the most recent five year period.
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

7. **Ambient Air Monitoring** – The permittee shall maintain and operate an SO₂ monitor alert system in the facility's control room that shall register an audible alarm if in any 12-hour period the average measured ambient concentration of SO₂ at any of the six (6) monitors is equal to or greater than 70% of the 24-hour SO₂ National Ambient Air Quality Standards (NAAQS), measured as 98 parts per billion (255.5 µg/m³). The permittee shall document and record each incident in which an alarm has been triggered. Records of each instance shall be maintained on-site for the most recent five year period.
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
8. **Ambient Air Monitoring** – The permittee shall maintain and operate an SO₂ monitor alert system in the facility's control room that shall register an audible alarm if an average ambient concentration of SO₂ is measured at any of the six (6) monitors that is equal to or greater than 70% of the annual SO₂ National Ambient Air Quality Standards (NAAQS), measured as 56 µg/m³. The permittee shall document and record each incident in which an alarm has been triggered. Records of each instance shall be maintained on-site for the most recent five year period.
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)
9. **Predictive Modeling** – The permittee shall operate the facility in a manner that does not cause or significantly contribute to modeled SO₂ NAAQS exceedances by using predictive modeling described as follows:
- By 10 AM each morning, the permittee shall collect actual weather predictions from the National Weather Service for Reagan National Airport and use the weather data along with planned operating parameters as inputs to conduct a computer modeling run for the following day using AERMOD EBD.
 - If the predictive modeling predicts that the facility's planned operations for the following day will not result in a modeled NAAQS exceedance for SO₂, the facility may operate on the day modeled in accordance with the modeled operating parameters and subject to other limitations as contained in this permit.
 - If the predictive modeling indicates that the planned operating parameters will result in one or more modeled NAAQS exceedances for SO₂, the facility shall not run under those operating parameters but shall continue to adjust its planned operations and conduct additional modeling runs using the adjusted operating parameters to confirm that the adjusted operations will not cause or significantly contribute to a modeled exceedance of the SO₂ NAAQS subject to other limitations as contained in this permit.
 - In performing the predictive modeling, the permittee shall use the following background concentrations for SO₂: 55 µg/m³ on a 24-hour basis and 176 µg/m³ on a 3-hour basis.
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

OPERATING LIMITATIONS

10. **Fuel** - The approved fuels for boilers C1, C2, C3, C4 and C5 are coal and distillate oil. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

11. **Fuel** - The coal and distillate oil shall meet the specifications below:

COAL:

Maximum heat content: 12,800 Btu/lb HHV
as determined by ASTM D2015, D3286, or a DEQ-approved equivalent method.

Maximum sulfur content per shipment: 0.9 %
as determined by STM D3177, D4239, or a DEQ-approved equivalent method

Maximum ash content per shipment: 11.0%
as determined by ASTM D3174, or a DEQ-approved equivalent method.

DISTILLATE OIL which meets the ASTM D396 specification for numbers 1 or 2 fuel oil:
Maximum sulfur content per shipment: 0.8%

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

12. **Fuel Certification** - The permittee shall obtain a certification from the fuel supplier with each shipment of coal and distillate oil. Each fuel supplier certification shall include the following:

- a. The name of the fuel supplier;
- b. The date on which the coal or distillate oil was received;
- c. The quantity of coal or distillate oil delivered in the shipment;
- d. A statement that the distillate oil complies with the American Society for Testing and Materials specifications (ASTM D396) for numbers 2 fuel oil;
- e. The sulfur content of the coal or distillate oil;
- f. Documentation of sampling of the coal or distillate oil indicating the location of the fuel when the sample was taken; and;
- g. The methods used to determine the sulfur and ash contents of the coal;

Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by DEQ may be used to determine compliance with the fuel specifications stipulated in Condition 6. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

EMISSION LIMITS

13. **Boiler SO₂ Emission Limits** – For the period beginning June 1, 2007, and ending on September 30, 2007, SO₂ emissions from the operation of boilers C1, C2, C3, C4, and C5 shall not exceed the limits specified below:

- 1,320 tons inclusive expressed as a mass emission rate for the period (boilers C1, C2, C3, C4, and C5 combined)
- 0.50 lbs/mmBtu* (boilers C1, C2, C3, C4, and C5 combined)
- 338.0 lbs/hour* (each boiler)
- If monitored SO₂ concentrations equal or exceed 70% of the National Ambient Air Quality Standard (NAAQS) at any time during this period, hourly emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed 700.0 lbs/hr*.

*Calculated hourly as the average of each consecutive 3-hour period.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

14. **Boiler SO₂ Emission Limits** – For the period beginning October 1, 2007, and ending on March 31, 2008, SO₂ emissions from the operation of boilers C1, C2, C3, C4, and C5 shall not exceed the limits specified below:

- 2,000 tons inclusive expressed as a mass emission rate for the period (boilers C1, C2, C3, C4, and C5 combined)
- 0.40 lbs/mmBtu* (boilers C1, C2, C3, C4, and C5 combined)
- 270.0 lbs/hour* (each boiler)
- If monitored SO₂ concentrations equal or exceed 70% of the National Ambient Air Quality Standard (NAAQS) at any time during this period, hourly emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed 700.0 lbs/hr*.

*Calculated hourly as the average of each consecutive 3-hour period.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

15. **Boiler SO₂ Emission Limits** – Beginning April 1, 2008, SO₂ emissions from the operation of boilers C1, C2, C3, C4, and C5 shall not exceed the limits specified below:

- 3,500 tons/year** inclusive (boilers C1, C2, C3, C4, and C5 combined)

- 0.28 lbs/mmBtu* (boilers C1, C2, C3, C4, and C5 combined)
- 270.0 lbs/hour* (each boiler)
- If monitored SO₂ concentrations equal or exceed 70% of the National Ambient Air Quality Standard (NAAQS) at any time during this period, hourly emissions from boilers C1, C2, C3, C4, and C5 combined shall not exceed 700.0 lbs/hr*.

*Calculated hourly as the average of each consecutive 3-hour period.

**Calculated monthly as the sum of each consecutive 12-month period.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

16. **Facility wide Emission Limits** – Beginning April 1, 2008, total annual emissions of SO₂ from the facility shall not exceed the limits specified below:

	<u>Annual (tons per year)**</u>
Boilers C1, C2, C3, C4, and C5 (combined)	3,500 tons

**Calculated monthly as the sum of each consecutive 12-month period.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition 4. (9 VAC 5-80-850, 9 VAC 5-80-800.C.2, 9 VAC 5-80-820.D, and 9 VAC 5-50-260)

17. **Visible Emission Limit** - Visible emissions from the boilers C1, C2, C3, C4, and C5 shall not exceed 20 percent opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 30 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.
(9 VAC 5-80-850, 9 VAC 5-50-80, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

RECORDS

18. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Northern Virginia Region Office. These records shall include, but are not limited to:
- a. All fuel supplier certifications.

- b. Emissions calculations and CEMS data for SO₂ from the boilers using calculation methods approved by the Northern Virginia Regional Office to verify compliance with the lbs/hour and tons/year emission limitations in Conditions 13 through 16.
- c. CEMS, COMS, and SO₂ ambient air monitor maintenance and calibration records.
- d. All recorded COMS and SO₂ ambient air monitoring data including records of monitor alarm instances.
- e. Scheduled and unscheduled boiler maintenance and operator training.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

NOTIFICATIONS

19. **Notifications** - The permittee shall furnish written notification to the Northern Virginia Regional Office of:

- a. The anticipated dates of any continuous monitoring system performance evaluations performed in accordance with 40 CFR Part 75 postmarked not less than 30 days prior to such date.

(9 VAC 5-50-50, 9 VAC 5-80-850, 9 VAC 5-80-800.C.2 and 9 VAC 5-80-820.D)

GENERAL CONDITIONS

20. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.

(9 VAC 5-170-130 and 9 VAC 5-80-850)

21. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Northern Virginia Regional Office of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone, or telegraph. Such notification shall be made as soon as practicable but no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within two weeks of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Northern Virginia Regional Office in writing.
(9 VAC 5-20-180 C and 9 VAC 5-80-850)
22. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.
(9 VAC 5-20-180 I and 9 VAC 5-80-850)
23. **Maintenance/Operating Procedures** – At all times, including periods of start-up, shutdown, soot blowing, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to boilers C1, C2, C3, C4, and C5.

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.
(9 VAC 5-50-20 E and 9 VAC 5-80-850)

24. Permit Suspension/Revocation - This permit may be revoked if the permittee:

- a. Knowingly makes material misstatements in the permit application or any amendments to it;
- b. Fails to comply with the terms or conditions of this permit;
- c. Fails to comply with any emission standards applicable to a permitted emissions unit;
- d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;
- e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect at the time that an application for this permit is submitted;
- f. Fails to comply with the applicable provisions of Articles 6, 8 and 9 of 9 VAC 5 Chapter 80.
(9 VAC 5-80-1010)

25. Change of Ownership - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Northern Virginia Regional Office of the change of ownership within 30 days of the transfer.
(9 VAC 5-80-940)

26. Permit Copy - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9 VAC 5-80-860 D)